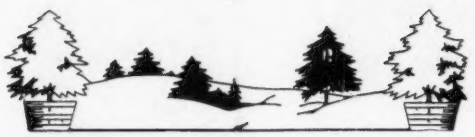
American Society for Testing Materials BULLETIN

ISSUED ASTM BI MONTHLY

Christmas Greetings

December
1932



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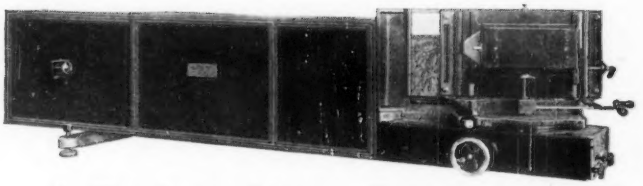

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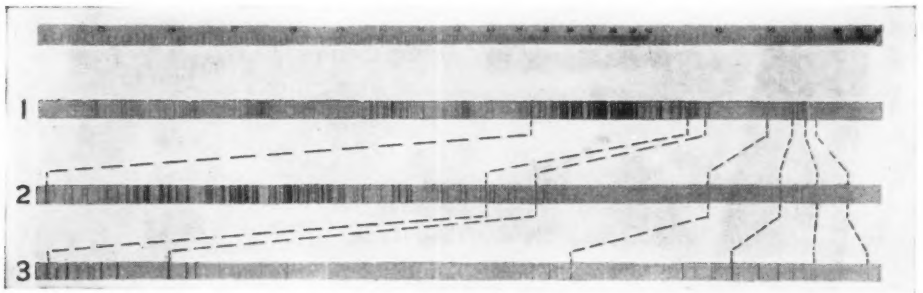

Comparison of Portions of the Iron Arc Spectrum as taken with:

(1) The B&L Medium Quartz Spectrograph.
(2) The B&L Large Littrow Type Spectrograph with Quartz Prism.
(3) The B&L Large Littrow Type Spectrograph with Glass Prism.

Note particularly the increased line separation and detail in Spectra (2) and (3). The broken lines connect spectrum lines of the same wave length.

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American Society for Testing Materials

BULLETIN

ENGINEERS' CLUB BUILDING 1315 SPRUCE STREET PHILADELPHIA, PA.

NUMBER 59 DECEMBER 19, 1932

1933 Regional Meeting in New York City, March 8

Symposium on Motor Lubricants to be Technical Feature

THE 1933 Regional Meeting of the Society will be held in New York City on Wednesday, March 8. A Symposium on Motor Lubricants is being developed as the technical feature of the meeting and as at previous meetings a dinner is being arranged. This meeting, together with the group meetings of committees, will be held in the Hotel New Yorker.

This will be the fourth regional meeting of the Society. The primary purpose of these meetings when they were first considered was to stimulate in the region where they were held an interest in the Society and its work. Each of the very successful meetings has done this very thing—each has focused attention on A.S.T.M., what it means and just what it is doing. While this is an important function of a regional meeting, there is now a much broader realization of what constitutes its major value. This lies in the opportunity offered through the technical program to emphasize broadly technical, and at the same time directly practical, information and data on engineering subjects of a materials nature. Thus the Symposiums on Automotive Materials, on Welding and the Symposium on Rubber, held last year in Cleveland, brought to the engineer a wealth of practical, helpful data which are concisely arranged in the form of a bound publication subsequent to presentation. Each of the above symposiums has brought out a great deal of hitherto unavailable information.

As in previous years, general arrangements for the meeting are being handled by the local district committee, this time by the New York District Committee under the chairmanship of Past-President F. M. Farmer.

Symposium on Motor Lubricants

The Symposium on Motor Lubricants is being developed by A.S.T.M. Committee D-2 on Petroleum Products and Lubricants with a subgroup in active charge. This group comprises prominent technologists in the petroleum industry and includes J. G. Detweiler, The Texas Company, chairman; R. P. Anderson, Division of Refining, American Petroleum Institute and secretary of A.S.T.M. Committee D-2; H. C. Mougey, General Motors Corp. and J. B. Rather, Standard Oil Company of New York. They have arranged for a group of technical papers which promise to be of unusual interest and value. A tentative list of the papers and authors is given on this page.

Great advances have been made in the production of motor lubricants, engine designs have been improved, and auxiliary equipment has been developed to insure more efficient use of oils, and the users who spend millions of dollars annually for lubricants are becoming better informed as to the advantages of correct lubricating oils. Rather than being the commonplace occurrence of a decade ago, "burned-out" bearings are now rather infrequent. Engines function longer, automobiles glide along with far less friction. Great strides have been made in eliminating that old bugaboo—carbon deposit.

The symposium will effect a general summation of progress, describe present practices and theory, and serve to point the way for future lines of improvement. There follows a list of the papers which will be included in the symposium.

SYMPOSIUM ON MOTOR LUBRICANTS

1. FACTORS IN ENGINE DESIGN WHICH AFFECT OIL PERFORMANCE—A. L. Clayden, Research Engineer, Sun Oil Co.
2. SERVICE CHARGES IN CRANKCASE LUBRICATING OILS—M. A. Dietrich, Chemist, De Laval Separator Co.
3. OIL CONSUMPTION IN MOTOR CAR ENGINES—W. H. Graves, Chief Metallurgist, Packard Motor Car Co.
4. CARBON DEPOSITS IN GASOLINE ENGINES—W. A. Gruse, Senior Industrial Fellow, Mellon Institute of Industrial Research.
5. PRESENT CONCEPTS OF THE RELATION OF A.S.T.M. POUR TEST TO SERVICE REQUIREMENTS OF OILS—J. L. McCloud, Metallurgical Chemist, Ford Motor Co.
6. VISCOSITY OF AUTOMOBILE CRANKCASE OILS AS RELATED TO SERVICE REQUIREMENTS—E. W. Upham, Chief Metallurgist, Chrysler Corp.
7. AIRPLANE LUBRICATION—Arthur Nutt, Vice-President in Charge of Engineering, Wright Aeronautical Corp.

These papers will be presented in two sessions, afternoon and evening, the latter to follow the informal dinner. Definite announcement of the program and arrangements will be made in the next issue of the BULLETIN.

All members of the Society, their friends and associates and those interested are cordially invited to attend the sessions and dinner. From the standpoint of attendance these meetings are not "regional," for members from all parts of the country attend.

Group Meetings of Committees

The standing committees of the Society will hold their annual spring group meetings in conjunction with the Regional Meeting, extending from Monday, March 6, through Friday, March 10. The Hotel New Yorker has excellent facilities for such a group of meetings and committee requirements can be adequately met. It is expected that an unusually large number of committees will be participating.

Arrangements will be made with the various railroad passenger associations for the granting of the certificate plan of transportation which enables members to save a considerable portion of their round trip fare. Further announcements will be made covering this matter and others, such as room reservations, schedule of committee meetings and the like.

Members are requested to mark these dates on their calendars, March 6–March 10, New York City.

1933 Annual Meeting to Be Held During Engineering Week

Important Technical Discussions Scheduled—Second Exhibit Planned

AN unusual incentive is offered Society members and others interested in its work to attend the Thirty-sixth A.S.T.M. Annual Meeting in Chicago, during the week beginning June 26, in that this has been designated "Engineering Week" by the Century of Progress Fair authorities, and one day will be known as "Engineers' Day." So much has been written in business papers, journals and newspapers concerning the Century of Progress Fair that almost every one who can read knows something about it. It will suffice, therefore, to state that this Fair will attempt to show the progress of man during the last century. Although the many exhibits will be set up to convey a picture of developments to the general public, there will be much of particular interest to the engineer. The Hall of Science will house extensive exhibits of a technical nature—aimed to review for the technical man developments in his fields—both in pure and in applied science. The exhibits will be of special interest, since they will in general deal with processes and not merely products.

Engineering Week and Engineers' Day

The Fair opens officially June 1 and will be in full swing during Engineering Week and the A.S.T.M. annual meeting. During this week and also in the preceding week, designated Science Week, special programs will be given in the Fair in keeping with the aims and activities of the many societies who will be meeting. Most of the Societies participating in Engineering Week will be holding annual or regional meetings. On Engineers' Day, Wednesday, June 28, all of the societies will join in a program of unparalleled magnitude. Special trips and programs will be arranged in the Fair. In the evening a dinner is planned at which will be present engineer statesmen of the world and world renowned engineers and scientists. Final plans have not yet been decided, but members will be kept informed of these as they develop. The Society is taking an active part in plans for Engineers' Day and it is possible that some of the customary features of an A.S.T.M. annual meeting will be merged with the general plans.

The following organizations have signified their intention of participating:

American Association of Engineers
American Ceramic Society
American Foundrymen's Association
American Institute of Architects
American Institute of Electrical Engineers
American Institute of Mining and Metallurgical Engineers
American Society for Testing Materials
American Society of Agricultural Engineers
American Society of Civil Engineers
American Society of Heating and Ventilating Engineers
American Society of Mechanical Engineers
American Society of Municipal Engineers
American Society of Refrigerating Engineers
Institute of Radio Engineers
National Association of Practical Refrigerating Engineers
National Council of State Boards of Engineering Examiners
Society of Industrial Engineers
Society for the Promotion of Engineering Education
Western Society of Engineers

Important Technical Sessions

Among the important technical features being arranged for the Thirty-sixth Annual Meeting, there are conspicuous the Symposium on Cast Iron, the discussion on Significance of Tests of Concrete and Concrete Aggregates, sponsored by A.S.T.M. Committee C-9 and the contribution by A.S.T.M. Committee B-7 which will take the form of an extensive report dealing with physical properties, corrosion-resistant data, etc., of light metals and alloys, in which field this committee functions.

Symposium on Cast Iron

The Symposium on Cast Iron will be sponsored jointly by the American Foundrymen's Association and the A.S.T.M., being the third in the series in which these organizations have cooperated to provide the engineering profession with authoritative data in concise form on the properties of castings produced by the best present methods of production. Previously, malleable-iron and steel castings have been covered in extensive symposiums. A joint committee consisting of technologists from the two societies has been actively engaged in preparing for the symposium. Various authorities on particular phases of cast iron are to assemble available data and information and subsequently to prepare these in concise form for presentation and publication. Some of the topics to be covered include metallurgy, general engineering properties, physical properties, classification, specifications, design and its effect on physical properties, machineability, wear, corrosion, corrosion-resistant iron castings, heat-resistant cast irons, white and chilled irons, heat treatment and welding.

The session in which this symposium will be held promises to be very interesting and should attract many of the technical men engaged in the production or use of cast iron. One of the really fundamental values of a symposium of this kind, arranged and supervised by leaders in the industry, lies in the composite opinions presented—hence they are authoritative in the broad sense of that word.

(Readers especially interested in this brief advance notice of the symposium should refer to an article in this BULLETIN describing another joint meeting of the two sponsor groups dealing with Specifications and Tests for Cast Iron to be a part of the 1933 A.F.A. convention.)

Significance of Tests of Concrete and Concrete Aggregates

The Society and other associations and groups have done a great deal to develop and standardize tests for concrete and its ingredients. As the use of that engineering material increased, the necessity for adequate tests became more pronounced. A.S.T.M. Committee C-9 on Concrete and Concrete Aggregates has had under consideration for some time the presentation of an effectual summation of the significance of these, their relative importance, and whether they adequately present a true picture of what can be expected from concrete, etc. Accordingly the committee will sponsor at the 1933 annual meeting a session in which the "Significance of Tests of Concrete and Concrete Aggregates" will be extensively discussed. The list of topics and those responsible for the individual sections follows:

INTRODUCTION.....A. N. Talbot

A. SIGNIFICANCE OF TESTS FOR CHARACTERISTICS OF CONCRETE

1. STRENGTH
   (*a*) Compressive.....D. A. Abrams
   (*b*) Tensile and Transverse.....A. T. Goldbeck
2. ELASTIC PROPERTIES.....F. E. Richart
3. DURABILITY (Effects of all external forces except loads)
   C. H. Scholer

(*Continued on page 9*)

The Use of A.S.T.M. Standards

V. Standards and the Engineer

THIS, the fifth in a series of articles on the use of A.S.T.M. standards, has been preceded by short statements indicating the value of standards to producers, purchasing agents and specification writers. In this final note we wish to emphasize the usefulness of standards to the engineer, having in mind those technical men who are responsible for design, construction and operation of engineering structures and equipment.

The *designing engineer's* problems are many. He first of all has a variety of materials from which to make a selection and some decision must be reached on the type of material to be employed before attempting any detailed design. The many specifications of the Society set forth the properties and qualifications of the more widely used engineering materials and give a very good picture of what materials will fulfill requirements. With the selection once made the design would need to take into consideration the physical properties that might be expected in the case of each material. This will be reflected in the working stresses used. The specifications and methods of test are then of direct service in preparing the detailed specifications for they may be used in their entirety or merely incorporated by reference. Every manufacturer knows, for instance, what is intended when A.S.T.M. Specifications A-7 for Steel or A.S.T.M. Specifications C-9 for Cement are specified. This simplifies the submitting of estimates, enables a fair comparison of bids, simplifies the actual supplying of material and the inspection and acceptance of the material on the job.

The question of acceptance, however, brings us to the *construction engineer*. He likewise is interested in the ordering of materials and supplies but more especially in the testing and inspection. Under standard specifications there should be little justification for misinterpretation on the part of suppliers. With a definite understanding of the tests to which the material is to be subjected the engineer is in a position to make these tests promptly and expeditiously, particularly in view of the availability of standard methods of test covering most structural materials. The engineer will have greater assurance that the proper material will be delivered obviating any delay for a return or replacement of unsatisfactory material. Every engineer knows how expensive such delays can be when a project must go forward on schedule and each operation hinges upon the satisfactory completion of the preceding portion of the job.

The *operating engineer* similarly has many uses for A.S.T.M. standards. He has many supplies that must be purchased and standards of the Society can be used to advantage in ordering these. He may have repairs and alterations to make in which case a knowledge of the material that was used in the original construction is essential and a supply of material conforming to the original specifications is more than a convenience! A.S.T.M. test methods serve as excellent control tests for the operati g engineer who must keep his equipment running satisfactorily.

It is appreciated that most engineers realize the value of standard specifications and methods of test. However, we do suggest a careful periodic scanning of the list of A.S.T.M. specifications and methods that are available. New ones are being added each year and many of these undoubtedly have direct application to some of the problems the engineer has before him.

Specifications and Tests for Cast Iron to Be Feature of Joint A.F.A. – A.S.T.M. Meeting

During the 1933 annual convention of the American Foundrymen's Association in Chicago, the week of June 19, there is to be a joint meeting of the A.F.A. and the Society. This is scheduled for Friday morning, June 23, at The Stevens. The joint meeting will be devoted to a technical discussion on Specifications and Tests for Cast Iron, participated in by leading metallurgists and testing experts in this important field. The primary object of this meeting is the presentation to founders of practical information on existing specifications for cast iron and methods of testing in order that there may be a better understanding of engineering requirements concerning this product. Among the points to be covered are the following:

1. Relationship of A.S.T.M. and A.F.A. in the development of specifications and tests.
2. Significance of testing cast iron and limitations of testing.
3. Correlation of test bar and casting.
4. Transverse and tensile tests.
5. Discussion of A.S.T.M. Specifications for Gray-Iron Castings (A 48 – 32 T).
6. Mechanism of Testing—Accuracy, Calibration, Effect of Speed of Operation.
7. Factors in the production of test bars.
8. Value of hardness testing for control of product.
9. Wear and machineability tests.

This meeting ties in very appropriately with the Symposium on Cast Iron which will be a technical feature of the A.S.T.M. annual meeting discussed on page 2.

The A.F.A. 1933 annual convention and exposition will immediately precede the Thirty-sixth Annual Meeting and Second Exhibit of the Society. The week beginning June 19 has been designated Science Week by the Century of Progress administration. Several scientific bodies or their divisions will be holding meetings during this week and the A.F.A. will cooperate with these in arranging programs of international participation which will be given.

The choice of Friday, June 23, as the time of the joint A.F.A. – A.S.T.M. meeting makes it convenient for A.S.T.M. members who will be going to the A.S.T.M. annual meeting to advance their departure date and attend the joint Friday meeting.

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Offers of Annual Meeting Papers

Attention is called to the solicitation of papers for the 1933 annual meeting issued in the Circular to Members No. 220 and forwarded under date of December 1. This call for papers is sent out early in order that the program may be completely developed as soon as possible. The limiting date fixed for receipt of offers is February 23, 1933, and all members who have in mind offering papers for the 1933 annual meeting are urged to have such offers in the hands of the Secretary-Treasurer well in advance of that date. All offers of papers to receive consideration must be accompanied by a summary of the proposed paper sufficiently in detail to make clear its scope and to bring out the features that in the opinion of the author make the paper sufficiently valuable for presentation and discussion at the meeting.

AMERICAN SOCIETY FOR TESTING MATERIALS

BULLETIN

Issued Bi-Monthly

Engineers' Club Building, 1315 Spruce St., Philadelphia, Pa.

Number 59 December 19, 1932

An Appreciating Investment

OPERATING Society affairs without curtailing its work in any essentials and yet *within* a materially reduced income, appears as an accomplished fact as 1932 draws to a close. Despite a decrease in income of about twelve per cent —a direct reflection of present-day industrial and economic conditions—we are nevertheless closing one of the most active and fruitful years in our history with a slight favorable balance between current income and expense. This has only been possible by exercising many economies in administrative and operating expenses, and by lowered costs of printing, supplemented by financial support from two committees towards the expense of publishing reports of extensive investigative work.

The really significant thing is that all our work—development of standards, researches, meetings, publications—has been carried on as vigorously and effectively as ever. Standardization in particular has kept pace with other years. Research and investigative work too has gone forward, and the Society has been able to publish without substantial curtailment the results of all such work as contained in reports and papers. As a consequence, the 1932 publications, which include a number of specially compiled books and pamphlets, have carried a wealth of important information to the membership and to industry in general.

What does this mean to you as a member? One thing that we believe it means is that an A.S.T.M. membership is one of your investments that has not depreciated in value. With the responsiveness of the Society to your needs for reliable data on properties of materials and for standard specifications and methods of test, your membership today is worth more than ever before—which is just as it should be!

Recalling some recent messages from President Chapman, who points out that after all the A.S.T.M. is YOU and that it is the "Participating Class" of membership that makes for progress, let us all put our shoulders to the wheel and make 1933 as full of good and useful works in the Society as ever in spite of the difficulties that may still lie ahead of us.

A.S.T.M. Must Go Forward!

FOR more than thirty years the record of our Society has been one of progress. We have pressed steadily forward with courage born of the knowledge that the aims and accomplishments of the A.S.T.M. are indispensable in the industrial structure of our nation. In all this period there have been only two years in which the membership curve showed a decline. We are now completing a third such year. It is not surprising, perhaps, that this should be true considering the difficult and trying times through which the country has been passing. Now, however, only the most pessimistic fail to see the light which is slowly illuminating the horizon. Statistical authorities agree that the bottom has been passed and that the trend of business is upward. We, as engineers, have always known that industry is basic and will continue in spite of business cycles and depressions as long as the needs and demands of people must be served. Another era of prosperity is ahead just as surely as day follows night and our Society which is so closely identified with industry must be ready and must continue its progress. We must make this third year of declining membership the last.

Each member has a definite responsibility with respect to the progress of the Society. This responsibility is twofold: first—to retain his own membership; second—to secure an additional member. There are numerous corporations and engineers who would be glad to share in the A.S.T.M. activities if they knew the many opportunities and advantages which would thus be secured. They can be reached only by those with whom they come in personal contact. They must be shown how they can obtain the advantages for themselves and at the same time render service to their industry. It is easy for us to avoid our responsibility in this regard with the thought that we have a membership committee charged with such matters. No committee can take the place of the individual member, nor accomplish the results which can be attained by the personal effort of each one. In the July BULLETIN, President Chapman reminded us that "Every member is but talking to himself when he speaks of what ought to be done or not done by the Society." Let us all take President Chapman's words to heart and accept personal responsibility for the progress of the Society. When each member secures a new membership in addition to his own, think what that will mean for increased effectiveness and service while at the same time assuring the continued progress of the Society.

Arthur W. Carpenter

Chairman, Committee on Membership.

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Committee on Dudley Medal Appointed

The Executive Committee has appointed the following Committee on Award of the Dudley Medal:

J. B. Young, *Chairman*, Engineer of Tests, Reading Co., Reading, Pa.
G. B. Waterhouse, Professor of Metallurgy, Massachusetts Institute of Technology, Cambridge, Mass.
H. F. Gonnerman, Manager, Research Laboratory, Portland Cement Assn., Chicago, Ill.

This committee will review the eligible technical papers presented at the 1932 annual meeting in Atlantic City and will select that paper of outstanding merit constituting an original contribution on research in materials which in its opinion deserves the award of the medal. The medal will be awarded at the 1933 annual meeting in Chicago.

Why Is A.S.T.M.?

President Chapman Gives His Answer

That is not a catch question, nor is it frivolous. It would be extremely interesting if the carefully prepared answers of all of our 4000 members could be collected and compared. What would your answer be? Here is mine.

A.S.T.M. did not just happen. It was created to fill needs of industry and commerce not adequately provided for by any then existing agency. It is here to furnish a common ground on which both producers and consumers can meet in whole-hearted cooperation to promote the knowledge of the materials of engineering and to work out acceptable standards of quality and methods of test. That word *"work"* should be underscored, for it is the key word in any description of how the objects of the Society are attained.

Standards do not just happen. They are the needs of industry and commerce that the Society exists to fill. Every member is enlisted in that cause. That is why we are members. That is why "we" (collectively) are A.S.T.M. Do you agree?

Clayd M. Chapman

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Proceedings in Mail During December

The publication of the *Proceedings* has been carried out on schedule and both Parts I and II will be mailed to the members during the last two weeks of December. Under the present plan members should receive these before the end of the year. If they are not received within a reasonable time, the Assistant Treasurer should be notified.

One of the chief values of the *Proceedings* lies in the discussions of the various papers. This may have been given orally at the time the paper was presented or received subsequently in written form. By including this in permanent form in *Proceedings*, there are given various viewpoints on a subject, and new light may be shed on difficult problems.

The paper used in the 1932 *Proceedings* is the same as that used in 1931. This paper is of higher quality than that used in previous issues and increases materially the clearness of the many illustrations and photographs which appear. Part I of the 1932 *Proceedings*, including the many extensive committee reports, comprises 1071 pages; Part II, made up of the technical papers, includes 824 pages.

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Index to Standards in Wide Demand

One of the publications of the Society for which there is an increasing demand is the Index to A.S.T.M. Standards and Tentative Standards, issued annually in December. This Index gives under appropriate key words the titles of all Society standards together with references to the publications in which they may be found. Each standard is indexed under the principal subjects covered by it. Purchasing agents, specification writers and those engaged in actual testing, etc., find the Index of considerable help, not only in locating any specification or method of test, but also in determining if the Society has issued standards on a specific subject. This year the demand was unusually large indicating that this publication is being used more and more widely. It is furnished without charge.

Several Standards Approved by A.S.A.

The American Standards Association has recently given approval to several A.S.T.M. standards and revisions in A.S.T.M. standards previously approved. Under the Proprietary Standards Method (which is a recognized A.S.A. method whereby a standard is formulated originally and thereafter entirely revised under the auspices of sponsor organizations) approval has been given to Standard Specifications for Lake Copper Wire Bars, Cakes, Slabs, Billets, Ingots and Ingot Bars, A.S.T.M. designation B 4 – 27; A.S.A. H 17.1 – 1932, and Electrolytic Copper Wire Bars, Cakes, Slabs, Billets, Ingots and Ingot Bars, A.S.T.M. designation B 5 – 27; A.S.A. H 17.2 – 1932.

On the recommendations of the Sectional Committee on Petroleum Products and Lubricants (A.S.T.M. Committee D-2) A.S.A. approval has been given the following:

Revision of American Standard:

D 216 – 32	(Z 11.11 – 1932)	Test for Distillation of Natural Gasoline

Advancement from American Tentative Standard to American Standard:

D 97 – 30	(Z 11.5 – 1932)	Test for Cloud and Pour Points of Petroleum Products
D 127 – 30	(Z 11.22 – 1932)	Test for Melting Point of Petrolatum
D 286 – 30	(Z 11.23 – 1932)	Test for Determination of Autogenous Ignition Temperatures
D 56 – 21	(Z 11.24 – 1932)	Test for Flash Point of Volatile Flammable Liquids

Approval as American Standard: (first submittal)

D 189 – 30	(Z 11.25 – 1932)	Test for Carbon Residue of Petroleum Products
D 158 – 28	(Z 11.26 – 1932)	Testing Gas Oils

Approval as American Tentative Standard: (first submittal)

D 308 – 29 T	(Z 11.27 – 1932)	Test for Expressible Oil and Moisture in Paraffin Waxes
D 288 – 31 T	(Z 11.28 – 1932)	Definitions of Terms Relating to Petroleum
D 322 – 30 T	(Z 11.29 – 1932)	Test for Dilution of Crankcase Oils
D 91 – 30 T	(Z 11.30 – 1932)	Test for Precipitation Number of Lubricating Oils

(The designations in parentheses are those assigned the Standards by the A.S.A.)

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1932 Book of Tentative Standards Largest Yet Issued

The 1932 Book of Tentative Standards which was distributed early in November, to those who ordered copies, comprises 1236 pages. Thus, the 1932 edition of the book is by far the most extensive yet issued. This year there were 47 new tentative standards accepted for publication. The size of the book does not, of course, give any conception of its value. Only an examination of it or a careful perusal of the table of contents can give a fair idea of just what it includes. There is enclosed with this BULLETIN a complete table of contents of the Book of Tentative Standards together with the foreword. It is felt that members who have not yet ordered copies may have overlooked the order blank sent with a recent Circular to Members. Accordingly, an order blank is also included.

Each of the tentative standards, whether it be a specification or test method, is being used extensively in industry because of the careful work of the A.S.T.M. committee which has charge of a respective standard and, too, because of the rigorous examination through the several Society steps necessary before publication.

Timber Papers Feature New York Meeting

Timber as an Engineering Material was the subject chosen for the meeting of the New York district members held on November 17. The meeting was held under the auspices of the New York District Committee, under the chairmanship of Past-President F. M. Farmer. The technical program was arranged by Dr. Hermann von Schrenk, Consulting Timber Engineer, and chairman of A.S.T.M. Committee D-7 on Timber.

Mr. J. V. Neubert, Chief Engineer, Maintenance and Way, New York Central Lines, and President, American Railway Engineering Association, and E. J. Russell, Architect, St. Louis, Mo., President, American Institute of Architects, presented the viewpoint of the user of timber. J. F. Carter, Chief Engineer, Southern Pine Association, indicated what steps were being taken by the manufacturer to meet the needs of the user for more authoritative information concerning timber and the furnishing of timber to definite specifications. Doctor von Schrenk emphasized the importance of protecting timber against the various forms of deterioration. These papers were followed by the showing of a motion picture film just completed in Europe showing the various forms of attack on timber and means of treating the timber so as to make it immune to such attack. The film included some remarkable microphotography of fungus growth and insect action, the pictures in some cases being taken over a period of several weeks and speeded up to show the details of fungus growth.

Mr. Neubert outlined the extensive use of timber by the railroads particularly in cross ties. No entirely satisfactory substitute has as yet been found. By suitable preservative treatment, the life of ties has increased from an average of 8 years to an average of more than 25 years. Mr. Russell called attention to the replacement of timber by other types of materials, giving as the chief reason the aggressiveness of suppliers of other materials in supplying architects with information concerning the properties of these materials and the failure of the lumber industry to furnish the architect with the necessary information to make it possible for him to look upon timber as a reliable engineering material.

Mr. Carter stated that some considerable progress was now being made, at least by some of the lumber interests, to make it easier for engineers to specify timber with certainty as to its quality and uniformity. The heavy factors of safety which have been so frequently employed only add to the cost of the structure and should be discarded.

Doctor von Schrenk called attention to the absolute necessity for treating timber for certain uses. When properly treated timber may be made to last as long as the economic life of the structure in which it is used. Surface application of preservatives he considered to be a total waste of money, the only efficient method of treating being impregnation. Treatment of timber for harbor and river structures is becoming especially important as progress is made in clearing up waters by sewage disposal plants which in turn will permit the attack of marine organisms, formerly kept in check by sewage pollution. He mentioned that the art of treating timber has advanced to a stage where no one need fear risking the use of treated wood and it should be considered whenever its qualities and cost warrant its use.

The meeting was very well attended and served to correct certain erroneous impressions that timber is no longer to be considered among the important engineering materials.

Committee on Textile Materials Has Fall Meeting

At the fall meeting of A.S.T.M. Committee D-13 on Textile Materials, held in Akron, Ohio, October 27–28, over 50 members and guests registered. The program included meetings of subcommittees, sessions of the main committee, inspection trips and a banquet.

The subcommittee on rayon is working on a method for determining the fiber content of rayon yarns and fabrics (residue after removing water and oil). A complete revision of the rayon specifications and a revision of the definitions of terms relating to textiles is under way, with progress reported. The subcommittee on cotton yarns has perfected its arrangements for the collection of a range of yarns and data thereon, and these will be tested under standard conditions with the idea of proposing possible revisions of the Draper strength standards for single cotton yarns. The tire fabrics subcommittee is working on calibration methods for tire cord testing machines and horizontal testing machines, specifications for holland cloths, and strength standards for tire cord made from various types of cotton. Other progress reports submitted cover adjustments for moisture regain against shipments for tire cord and revisions of duck specifications.

The committee announced that in response to an invitation from the subcommittee on rayon of the American Association of the Textile Chemists and Colorists, Mr. A. M. Tenney would represent the committee on that body.

Committee D-13 voted to submit the following tentative specifications to letter ballot of the committee for recommendation of advancement to standard:

Tentative Specifications for Chafer Tire Fabrics (D 316 – 31 T);

Tentative Specifications for Enameling Duck for the Tire Industry (D 336 – 31 T);

Tentative Revision of Standard Specifications for Tolerances and Test Methods for Cotton Sewing Threads (D 204 – 27).

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Meeting of Joint High Temperature Committee

At the December 7 meeting of the Joint Research Committee on Effect of Temperature on the Properties of Metals held in New York City, the reports received from various subcommittees indicated substantial progress in the research program.

The development of tentative test codes for high-temperature tension tests and high-temperature creep tests has progressed to the point where these codes will soon be placed before the Joint Committee for action relative to publication.

During the past six months the special melts required for sponsored researches relating to the high-temperature properties of austenitic nickel-chromium steels were secured and approved. There is now a steady flow of data to the committee from creep tests and the study of structural stability of these steels at the Battelle Memorial Institute and from fatigue tests at the University of Illinois. However, the work has not yet progressed far enough for any detailed reports. These may be expected some time during the latter part of 1933.

While unsatisfactory economic conditions have made it impracticable to secure all of the funds desired, sufficient money is available to enable continuation of these sponsored researches throughout at least the first half of 1933.

Student Membership Awards Established

Four Schools Have Plan in Effect

In the July BULLETIN, there was outlined a plan by which outstanding students in courses involving materials subjects in certain universities were to be awarded a student membership in the Society as a recognition of their scholastic efforts. The plan has been put into effect in four of the five universities at which members of the Society have sponsored prize awards.

At Cornell University, where three awards have been established by J. B. Johnson, the memberships will be awarded to those students in the Junior engineering classes who have made the best record in their work in connection with the study of materials of engineering, including the laboratory courses. The first awards will be made in February, 1933.

At Massachusetts Institute of Technology, where Arthur W. Carpenter has set up five awards, the winners will be chosen on the basis of outstanding ability in connection with the testing of materials of construction together with aptitude along chemical testing lines.

At the University of Pennsylvania, where five awards are to be made under the sponsorship of C. L. Warwick, the prizes will be awarded to a member of the Junior Class in each of the several departments, chemistry, chemical engineering, civil engineering, electrical engineering and mechanical engineering, who in the estimation of the staff of the department concerned will qualify as the outstanding student for the year in the courses of materials and allied subjects.

The five awards established at Rensselaer Polytechnic Institute by G. C. D. Lenth will be tendered to that student in each of the five Junior Class groups—civil, electrical, mechanical, chemical engineering and architecture, who in the judgment of those in charge of materials testing has done the best laboratory work. Interest shown in the work will also be taken into consideration.

Final plans for the choosing of the winners of the five awards established at Ohio State University by Dr. F. O. Clements have not been decided and will be announced later.

Value of Prize Plan

The idea of using A.S.T.M. student membership as a prize came about as the result of the establishing of awards at the University of Washington, by Prof. Ira L. Collier. It appealed at once to several members of the Society and the awards established in the five other engineering schools described above are a result. In each case, they are made by an individual member of the Society who wishes to bring the work of the A.S.T.M. more directly to the attention of the students in engineering, chemistry and allied subjects. A knowledge of what the Society is doing and how much it means can be placed in no more fertile field than in the mind of an engineering student who in due time will assume his place in industry. From the standpoints of more widespread knowledge of the Society among future engineers and the steady growth and increased efficiency of A.S.T.M. work, an extensive student membership is especially valuable.

The only fees in connection with student membership are the annual dues of $1.50. For these dues, a student receives a representative selection of the standards of the Society; he has the same opportunity as every other member of securing technical papers and committee reports; he may obtain A.S.T.M. publications at members' prices. He also receives the A.S.T.M. BULLETIN and other circular material regularly. Thus, membership is intrinsically worth far more to a student than the small sum entailed.

Other Members Interested

Other members of the Society have expressed an interest in this membership prize plan. The Secretary-Treasurer will be pleased to hear from these men with regard to the setting up of membership prizes in their Alma Mater or a school in which they are interested. Those sponsoring the awards are rendering a distinct service to the Society; they are making available to students much worth while material that would not otherwise be obtained and they are arousing competition in class work which will result in a more thorough understanding of the various subjects on the part of the student.

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Symposium on Steel Castings Issued

In accordance with the plans of the joint sponsors, the American Foundrymen's Association and the Society, the ten extensive papers and discussion thereon making up the Symposium on Steel Castings held at the 1932 annual meeting, have been published separately, in addition to their inclusion in the *Proceedings*. This book presents not only the viewpoints of the authorities who wrote each paper, but also the composite views of the several technologists who reviewed the papers before publication. The valuable data and useful information included in the book's 254 pages make it one which every engineer concerned with the production or use of steel castings should have in his reference library. For the convenience of members, there is enclosed with this BULLETIN a combined order blank and descriptive sketch of the symposium book.

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Important Research in Electro-Plating May Stop Unless —

For six years, the American Electroplater's Society has maintained an experienced research engineer at the U. S. Bureau of Standards under the direction of Dr. William Blum to develop sufficient test data to set up long needed plating standards—needed because there is much uncertainty as to the exact amount of plate required to protect and beautify an article. The A.S.T.M. has cooperated extensively in this work.

Seven thousand plated specimens are on test in different locations in the country and many laboratory experiments are under way in Washington to determine the corrosion-resistance value of plated coatings. This phase of the project can be completed with another year's work, but due to the present economic conditions, certain appropriations have been curtailed and an appeal is directed to the many companies who will benefit from this work for financial assistance. Large subscriptions are not necessary, if the response is fairly widespread. The research committee states that $4000 a year is required for the work and earnestly solicits subscriptions of an account not to exceed $25. Full acknowledgment of the assistance will be made. This important work should not be allowed to falter and any assistance will be appreciated.

Subscriptions should be sent to Walter Fraine, Secretary-Treasurer, 507 Grand Ave., Dayton, Ohio.

Committee C-13 on Concrete Pipe Organized

The newly formed Committee on Concrete Pipe, designated C-13, held its organization meeting at A.S.T.M. headquarters on November 14. This new committee grew out of an action by the Executive Committee of the Society which stated that the subjects of clay pipe and concrete pipe would no longer be considered by one committee, at that time Committee C-4 on Clay and Concrete Pipe. Committee C-13 will direct its consideration to concrete pipe.

At the organization meeting, Mr. Asa E. Phillips, Consulting Engineer, Washington, D. C., was elected chairman of the committee and Mr. M. W. Loving, Secretary, American Concrete Pipe Assn., was chosen secretary. The personnel of the committee is given below.

MEMBERS OF COMMITTEE C-13 ON CONCRETE PIPE

Consumers:

F. A. Barbour, Consulting Engineer, Boston, Mass.
George E. Finck, Sewerage Engineer, Baltimore, Md.
S. A. Greeley, Pearse, Greeley & Hansen, Chicago, Ill.
G. T. Hammond, Consulting Engineer, Brooklyn, N. Y.
J. S. Huntoon, Assistant Bridge Engineer, Detroit, Mich.
E. F. Kelley, Chief, Division of Tests, Bureau of Public Roads, Department of Agriculture, Washington, D. C.
A. E. Phillips, Consulting Engineer, Washington, D. C.
E. S. Rankin, Division Engineer, Bureau of Sewers, Newark, N. J.
A. R. Wilson, Engineer, Bridges and Buildings, Pennsylvania Railroad, Philadelphia, Pa.

General Interests:

T. R. Agg, Dean of Engineering, Iowa State College, Ames, Iowa.
Anson Marston, Professor of Engineering, Iowa State College, Ames, Iowa.

Producers:

American Concrete Pipe Assn., M. W. Loving, Secretary, Chicago, Ill.
American Concrete and Steel Pipe Co., E. F. Bent, Los Angeles, Calif.
Concrete Pipe and Products Co., H. W. Easterly, Richmond, Va.
Concrete Products Co. of America, C. F. Buente, Pittsburgh, Pa.
Lock Joint Pipe Co., F. F. Longley, Ampere, N. J.
Massey Concrete Products Corp., Charles Gilman, New York City.
J. L. Zeidler, Baltimore, Md.

The above personnel represents the present committee as officially appointed by the Executive Committee of the Society. One of the purposes of the organization meeting was to determine to what extent and in what manner the membership of the committee should be extended. It was decided to attempt to secure representatives on the committee from various highway departments and railroads which are especially interested in the concrete culvert pipe specifications. Negotiations are now under way toward this end. The additional group of members of the committee will be announced in a subsequent issue of the BULLETIN.

Work of the Committee

Considerable progress was made at the meeting in getting the work of the committee under way. A discussion of the classification of work to be undertaken led to a decision to immediately organize two subcommittees. Subcommittee I on Sewer Pipe Specifications is to be headed by S. A. Greeley; Subcommittee II on Specifications for Reinforced Concrete Culvert Pipe, by E. F. Kelly. Members of these committees were appointed.

The Executive Committee of the Society has assigned to Committee C-13 the responsibility for certain specifications now included in the A.S.T.M. list, namely, Standard Specifications for Cement-Concrete Sewer Pipe (C 14 – 24); Tentative Specifications for Reinforced-Concrete Culvert Pipe (C 76 – 30 T); and Tentative Specifications for Reinforced-Concrete Pipe (C 75 – 30 T). In addition, the committee will study the Recommended Practice for Laying Sewer Pipe (C 12 – 19) and Standard Definitions of Terms Relating to Sewer Pipe (C 8 – 24). The opinion of each member of the committee is being solicited as to whether these latter two standards should be retained.

A study is to be made of the extent of use of the existing A.S.T.M. standards covering concrete sewer and culvert pipe. At the same time various highway and municipal officials and railroad engineers are to be asked to express their views of the standards. With this information the committee may find it necessary to recommend revisions in certain of the standards.

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Color Council to Meet

The second annual meeting of the Inter-Society Color Council is to be held on December 28 at the Columbia University College of Pharmacy, 113 W. Sixty-eighth St., New York City. All individuals interested in color are cordially invited to attend this meeting.

Announcements have been made in previous issues of the BULLETIN covering the formation of the council, pointing out the A.S.T.M. committees and their representatives who would act as the A.S.T.M. representatives on the council, and mentioned that the Society had subscribed to active membership. From the first, the dominating purpose of the council has been to provide a means for standardizing color names and of providing uniform methods for designating or specifying colors. A second function has developed, namely, to serve as a clearing house for definite color problems. The council has made very satisfactory progress in both of these functions. During the summer, the Color Council published its first bulletin outlining its activities and including progress reports of various committees which were appointed to study specific problems. This bulletin should be of considerable interest to anyone interested in the particular field in which the council is active. If any members of the Society are especially desirous of obtaining a copy of this first bulletin, a limited number of additional copies were made available to members and cooperating associates of the council. Anyone interested in obtaining specific information about the council and its work should get in touch with M. Rea Paul, Secretary, 105 York St., Brooklyn, N. Y.

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"Good Data" Paper Available

A paper entitled "Statistical Control in Sampling Inspection" by H. F. Dodge, Bell Telephone Laboratories, was one of several presented at the round table discussion on "Acquisition of Good Data" at the 1932 annual meeting of the Society. This discussion was under the auspices of the Technical Committee on Interpretation and Presentation of Data, a subcommittee of Committee E-1 on Methods of Testing. A number of requests were received subsequent to the meeting for copies of the papers. There is now available a supply of reprints of the paper by Mr. Dodge and copies can be obtained from the Society at 25 cents each.

(*Continued from page 2*)

A. SIGNIFICANCE OF TESTS FOR CHARACTERISTICS OF CONCRETE (*Continued*)

4. WORKABILITY AND CONSISTENCY.....J. C. Pearson
5. VOLUME CHANGES.....R. E. Davis
6. UNIFORMITY.....R. L. Bertin

B. SIGNIFICANCE OF TESTS FOR CHARACTERISTICS OF AGGREGATES

1. GRADATION—SPECIFIC GRAVITY—UNIT WEIGHT AND VOIDS Fred Hubbard
2. DELETERIOUS SUBSTANCES.....F. C. Lang
3. SOUNDNESS.....Stanton Walker
4. FREE MOISTURE AND ABSORPTION.....Bert Myers
5. STRENGTH AND RESISTANCE TO ABRASION.....H. F. Clemmer
6. STRENGTH OF MORTAR.....F. H. Jackson

Each author will present in a concise way an analysis of the particular problem, follow with an outline of tests used in connection with the characteristics under discussion, their scope and limitations, and then discuss each test with respect to the theory on which the test is based, definition of the particular property which the test is intended to measure, significance, limitations and applicability of results, closing with recommendations involving desirable improvements in technique, needed research, etc. Committee C-9 assigned to a subgroup the responsibility of planning for the discussions. R. W. Crum, Research Council, Washington, D. C., Chairman of Committee C-9, A. T. Goldbeck, Director, Bureau of Engineering, Washington, D. C., and F. H. Jackson, Senior Engineer of Tests, U. S. Bureau of Public Roads, Washington, D. C., make up this special committee.

Light Metals and Alloys

With the organization in 1928 of A.S.T.M. Committee B-7 on Light Metals and Alloys, the Society definitely recognized the demands of industry for extended standardization and research work in this rapidly developing field. The committee has sponsored several standard specifications covering aluminum and aluminum alloys and magnesium alloys, as used commercially in their various forms. Because of the growing industrial applications and commercial interest in the light metals field, it was felt that this committee could perform a real service by compiling authentic data on the physical properties, service characteristics, corrosion-resistant properties, etc., of the several metals and alloys coming under the class of light metals. Accordingly, a subcommittee was appointed to plan for such a compilation and to collect and correlate existing data and information from the many sources where it exists. This group, headed by E. H. Dix, Jr., Chief Metallurgist, Aluminum Research Laboratories and including such prominent authorities as Messrs. H. S. Rawdon, J. B. Johnson, A. L. Boegehold, D. L. Colwell and Sam Tour has been active and will present at the 1933 A.S.T.M. meeting, possibly as a part of the report of Committee B-7, the results of its work. In general, the information will be presented and published under four general divisions as follows:

I. INDUSTRIAL REQUIREMENTS;
II. ALUMINUM BASE ALLOYS;
III. MAGNESIUM BASE ALLOYS;
IV. METHODS OF PROTECTION.

Each subject is subdivided in accordance with a carefully prepared outline so as to bring out the important data and information generally required. The men in charge of the various topics are enlisting the cooperation of the producers of light metals and of many groups of consumers. The report, which will be an extensive one, promises to be of far-reaching significance and value. Once the existing data are compiled and published, it will be a relatively easy task to keep them up-to-date.

Second Exhibit of Testing Apparatus

Plans are progressing for the holding of the Second Exhibit of Testing Apparatus and Equipment in conjunction with the annual meeting. This will follow in general the lines of the 1931 Exhibit, with the exception of a broadening in scope. In addition to testing machines and equipment, there will be included in the scope of the Second Exhibit recording and control apparatus, laboratory equipment, measuring instruments and the like, which are used in conjunction with the testing of materials. The Society will maintain the scientific and broadly educational atmosphere consistent with the technical nature of the Society's activities which was so well established in the 1931 Exhibit.

The Century of Progress Fair and the scheduled meetings of so many technical and professional societies during Engineering Week offer an unusual opportunity to stress the remarkable strides which have been made in the development of testing and related equipment.

The displays of special testing equipment not produced commercially which were sponsored by prominent research laboratories and by A.S.T.M. committees aroused great interest during the 1931 Exhibit. Committees of the Society and several research laboratories will again be invited to sponsor displays of similar scope in the Second Exhibit. The Exhibition Hall of the Stevens Hotel with its splendid facilities has been reserved for Engineering Week.

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Important Codes Refer to A.S.T.M. Standards

It is interesting to note the extensive list of A.S.T.M. standards and tentative standards that is given in an appendix of the Fifth Edition of the Building Code recommended by the National Board of Fire Underwriters. These standards are not given in full nor abstracted in the various parts of the code to which they apply, but there is a list of more than 60 A.S.T.M. standards given in Appendix E, and in that part of the code dealing with the quality of materials, attention is called to these standards as being the "more generally accepted" ones. In the opening paragraph to Appendix E, the following statement appears:

"Like the underwriters' regulations they have been prepared after much study and research by committees of men technically well qualified to fix these standards. They may be accepted as representing the best practice; and materials conforming to them should be accepted as meeting the requirements of this code within the limitations and conditions inherent in the standards or fixed by the code."

Proposed New York Building Code

Twenty-seven Society standards are referred to in the proposed building code for New York City which was prepared by the Merchants' Association of that city in consultation with leading building code officials and technical authorities. Fourteen of the A.S.T.M. standards designated as part of the code are specifications for ferrous materials including structural steel, concrete reinforcement steel, carbon-steel castings, steel pipe, wrought iron and cast-iron pipe and gray-iron castings. A.S.T.M. specifications for copper pipe and for brass pipe are designated. Under nonmetallic materials there are designated the Society specifications for portland cement, quick lime, hydrated lime, gypsum and gypsum block, building brick, clay sewer pipe and structural clay wall tile. Three A.S.T.M. tests are referred to.

New Members to December 1, 1932

The following seven members were elected from October 25 to December 1, 1932:

Individual and Other Members (7)

Couchman, A. R., Technical Dept., North American Cement Corp., Martinsburg, W. Va.

Heinrich, W. A., Vice-President and Chief Engr., James R. Kearney Corp., 4224 Clayton Ave., St. Louis, Mo.

Lux, N. V., President and General Manager, St. Paul Corrugating Co., 3–23 W. Water St., St. Paul, Minn.

May, D. T., Materials Engr., Bell Telephone Labs., 463 West St., New York City.

Monro, Claxton, Chief Chemist, American Woolen Co., Inc., 105 Chestnut St., Andover, Mass.

Mooney, T. G., Manager, Tech. Dept., North American Cement Corp., 285 Madison Ave., New York City.

Tuttle, C. E., Vice-President, Payson and Co., Inc., 72 Wall St., New York City.

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Appointments on I.A.T.M. Commissions

Announcement is made of the appointment of the representatives listed below on certain of the study commissions of the International Association for Testing Materials. These international study commissions are being organized primarily for the exchange of information on certain properties of engineering materials and phases of testing.

H. F. Moore, Professor of Engineering Materials, University of Illinois, is American representative on the Study Commission on Terminology of Mechanical Properties.

F. E. Richart, Research Professor of Engineering Materials, University of Illinois, is American representative on the Study Commission on Concrete and Reinforced Concrete which is to include a study of elasticity, plasticity, fatigue, stress and strain, stability and deformation.

E. C. Bingham, Professor of Chemistry, Lafayette College, has been appointed American representative on the I.A.T.M. Study Commission on Viscosity.

M. F. Sayre, Associate Professor of Applied Mechanics, Union College, is American representative on the I.A.T.M. Study Commission on Elasticity.

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Committees on Coal Classification Meet

The Technical Committees of the Sectional Committee on the Classification of Coal (organized under A.S.A. procedure) met recently at the Ambassador Hotel, Atlantic City. The meeting was well attended by members of both the Scientific and Use Classification Committees. Exceptional progress was made in setting up boundaries and specifications for the different classes of coal.

Subcommittee II on Origin, Composition and Methods of Analysis of Coal, A. C. Fieldner, chairman, submitted Report No. 5 "Recommendations on Testing Coal for Classification" and Report No. 6 "Recommendations on Type Classification of Coal."

Subcommittee IV on Tentative Classification of Coals, W. T. Thom, Jr., chairman, submitted a report giving a tentative classification of North American coals by rank.

All of these reports were accepted by the committee for reference to the Technical Committee on Scientific Classification. Copies will be sent to each member of the committee for criticism and comment. The technical committee will endeavor to submit a tentative system for classifying coals by rank and according to type at the next annual meeting, which will be held in February, in New York City, at the time of the meeting of the American Institute of Mining and Metallurgical Engineers.

Personals

News items concerning the activities of our members will be welcomed for inclusion in this column.

JAMES O. HANDY, formerly director of metallurgical and chemical investigations, Pittsburgh Testing Laboratory, has opened an office as Consulting Chemist and Metallurgist, 50 E. Forty-first St., New York City.

L. W. RYAN, formerly with the Titanium Pigment Co., is now Director of Research, United Color and Pigment Co., Newark, N. J.

R. P. DAVIS has been appointed Dean of the College of Engineering at West Virginia University to succeed C. R. Jones who becomes Dean Emeritus.

F. M. BECKET, Vice-President and Chief Technical Executive, Union Carbide and Carbon Co., has been nominated for the presidency of the American Institute of Mining and Metallurgical Engineers for 1933 and for director until February, 1936.

E. L. LASIER, Consulting Materials and Industrial Engineer, New York City, has been appointed Technical Editor of the *Research Laboratory Record*.

Several A.S.T.M. members and members' representatives have been extended invitations by the Reconstruction Finance Corporation to serve on the R.F.C. District Advisory Committees. In all, 43 well known engineers will serve on the committees in the various districts. A.S.T.M. members are W. S. LEE, Charlotte; J. B. HAWLEY, Dallas; E. N. NOYES, Dallas; B. M. BRIGMAN, Louisville; W. H. WHEELER, Minneapolis; G. W. FULLER, New York; C. M. SPOFFORD, Boston; W. B. GREGORY, New Orleans.

NECROLOGY

We announce with regret the death of the following:

A. R. ADAMSON, G. G. Blackstock and Co., Toronto, Ont., Canada. Member since 1925.

E. A. HADLEY, Chief Engineer, Missouri Pacific Railroad Co., Engineering Department, St. Louis, Mo. Mr. Hadley was the A.S.T.M. representative of his company.

H. W. HAYWARD, Professor of Materials of Engineering, Massachusetts Institute of Technology, Cambridge, Mass. Member since 1906. Since his graduation from M. I. T. in 1896, Professor Hayward had served almost continuously on its teaching staff.

TINIUS OLSEN, founder of Tinius Olsen Testing Machine Co., Philadelphia, Pa. Mr. Olsen had been a member of the Society since its inception in 1898. He came to Philadelphia from his homeland, Norway, in 1869 at the age of 24. His early training and natural inclinations lay in the mechanical field and it is here that his fame lies. He is generally credited with designing the first testing machine produced commercially for testing the tensile strength of materials and he was subsequently responsible for many inventions. His interests lay entirely in this field—testing, and his company grew to be one of the largest in the industry. Mr. Olsen's work in the testing machine field won for him the award of the Elliott Cresson Medal of the Franklin Institute and the John Scott Medal of the City of Philadelphia and he was honored by the King of Norway for his achievements. He was the oldest living life member of the Franklin Institute. In addition to his membership in the A.S.T.M., he was affiliated with the Society for the Promotion of Engineering Education and American Association for the Advancement of Science. At the time of his death he was a member of A.S.T.M. Committee A-3 on Cast Iron.

ARTHUR C. TAGGE, former president of the Canada Cement Co., Ltd., and member of its Board of Directors. Mr. Tagge retired in 1930 and lived in Monroe, Mich. He had been a member of the Society since 1915. He was long a member of Committee C-1 on Cement, serving on the advisory and other subcommittees and as vice-chairman for several years.

FRANK O. KICHLINE, Engineer of Tests, Bethlehem Steel Co., Lebanon, Pa. Member since 1923. Mr. Kichline was a personal member of Committee A-1 on Steel and represented his company on four subcommittees of Committee A-2 on Cast Iron and on Committee A-5 on Corrosion of Iron and Steel. He was the A.S.T.M. representative on the A.S.A. Sectional Committee on Bolt, Nut and Rivet Proportions.

PROFESSIONAL CARDS

PROFESSIONAL CARDS will be accepted for inclusion on this page from Consulting Engineers, Metallurgists, Chemists, Testing Engineers and Testing Laboratories.

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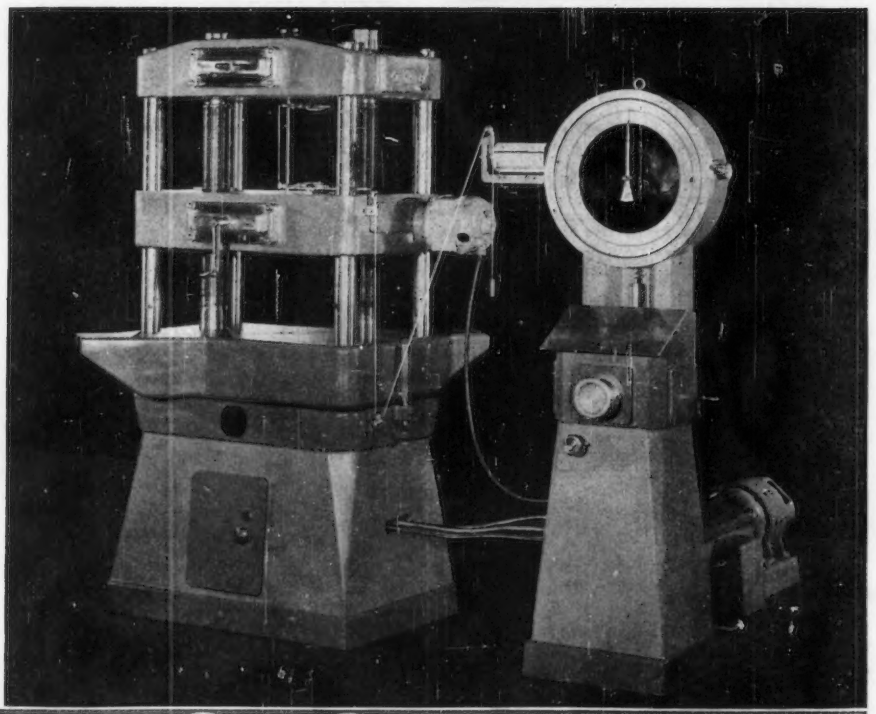

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